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Network Working Group
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SUMMARY OF COMPUTER MAIL SERVICES MEETING HELD AT BBN ON 10 JANUARY 1979

Introduction:

This note is a very belated attempt to document a meeting that was held three years ago to discuss the state of computer mail in the ARPA community and to reach some conclusions to guide the further development of computer mail systems such that a coherent total mail service would continue to be provided.

Some important conclusions were reached at this meeting which limited the extent to which mail systems were to incorporate new features in the context of the existing service and specifications.
Unfortunately, this meeting and the conclusions were not documented, and the specifications were not revised. This has led to continuing problems in the mail service.

Due to the passage of time these notes are necessarily quite incomplete. It is thought that there were a number of other attendees. I would like to express my appreciation to those who helped provide this information, especially Vint Cerf, Jack Haverty, Danny Cohen, Bob Thomas, and Debbie Deutsch.

The Meeting Announcement:

On 10 January 1979 we are holding a meeting at BBN in Cambridge, MA, starting at 0930, to discuss Message Service support on the ARPANET. The purpose of the meeting is to provide a basis for any standardization of efforts which may be necessary. We will take stock of the various message services currently available on the ARPANET, discuss problems which have been encountered between different message systems, review current protocols and review forthcoming developments. An agenda is given below. Each of you should be prepared to discuss current problems you are aware of and any developments which impact future message service.

The Meeting Agenda:

1. Present State of Affairs
   . Survey of Message Systems
   . Current Problems
   . Format Protocols - RFC 560, 680, 733
   . Distribution Service
   . Documentation
2. Future Developments in Message Technology
   . Multi-Media Techniques
   . Impact of Personal Computers
   . Distributed Service
      - NSW Project
      - Internetwork Addressing and Forwarding
   . Other
3. Impact of Charging Technology on the Message Service
   . Protocols
   . Distribution of Messages
4. Managing the Message Service
5. Supporting the Message Service

Talks:

1. Duane Adams opened the meeting. He indicated that we should be concerned about computer mail as a total message service (not just as a local user interface), and asked what impact on the message service the developments in internetting and multimedia would have.

2. Dave Farber gave a bit of history of mail systems, listing the names of all the systems anybody had every heard of (see Appendix A). It was noted that most of the mail systems were not formal projects (in the sense of explicitly sponsored research), but things that "just happened".

3. Ted Myer chaired a discussion of current problems in mail systems, and the following made comments as well: R. Stallman, D. Farber, P. Santos, K. Harrenstien, R. Kunzelman, T. Knight, B. Thomas, D. Lebling, J. Haverty, D. Cohen, D. Adams, V. Cerf, and A. Vezza.

   This was mostly gripes about what this or that mail system did wrong.

      Topics included use of MLFL instead of MAIL, fully qualifying the all the usernames with hostnames on all the addresses, immediate feedback about the addressed user having a mailbox at the destination host or getting an error message later, host

table update problems, strange FTP replies (e.g., "System going down in 10 minutes"), and addressing issues.

There were also some things mentioned that might be added to the current systems.

Topics included virtual hosts (e.g., NSW), internetted hosts, authentication, message identification, duplicate detection, spoofing, multicopy delivery, limits on receipt, program to program mail, structured typed data, graphics, fax, and voice.

At the end of this session there was a statement that further work was putting patches on patches and that we should make a commitment to a version 2 system. There should be an edict that says "this is it", and the current mail service should be frozen.

4. Debbie Deutsch talked about some work being done at BBN on multimedia mail.

Debbie discussed the alternatives for including other types of data (voice, graphics, fax, numeric, executable) in messages, and for structuring messages to identify and interrelate the different types of data. The main choice to make is between encoding the data in ASCII and using keyword field identifiers, or using a binary typed structured format. The current work is attempting integrate fax data handling into an existing text mail system. Copies of the viewgraphs were distributed.

5. There was a discussion of Personal Computers.

Tom Knight gave a short discription of the Lisp Machine project.

There was some general discussion of the impact of personal computers on mail services. The main realization being that the personal computer will not be available to handle incoming mail all the time. Probably, personal computer users will have their mailboxes on some big brother computer (which may be dedicated to mailbox service, or be a general purpose host) and poll for their mail when they want to read it. There were some concerns raised about accountability and accounting.

6. Bob Thomas talked about the ideas for routing mail between regular mailboxes on ARPANET Hosts and mailboxes of NSW users.

The main point of interest is that an NSW user is not a user of a specific host, thus, the notion of a mailbox being "user@host" dosen't work. Bob suggested that one might think of NSW as a virtual host. The implementation of this mail service for NSW

users is constrained to minimize the amount of new code and changes to existing programs. Bob described his ideas for address formats for sending messages between NSW users, from NSW users to ARPANET users, and from ARPANET users to NSW users. The last being the most difficult to pull off. Copies of the viewgraphs were distributed, and copies of a memo were distributed (BBN NSW Working Note 24).

7. Jon Postel talked about the ideas he had for internet multimedia mail systems.

Two aspects of this were a general approach to addressing and routing for mail distribution, and using a structure of typed data elements to represent the message data and control.

8. There was some discussion of other work in mail services.

Someone talked about the work of ANSI X3 S33 on message structure and protocol.

Dave Farber described the activities of IFIP TC 6.5 on international message services.

Ted Myer described the interests of the US Congress Office of Technology Assesment (OTA) in electronic communication.

General Discussion:

It was suggested that we need to view the problems in building a total message service rather than individual message systems.

In general it was felt that the current message service was somewhat out of control with incompatible varations and extensions. There were several instances where a minor change to one mail system led to unexpected problems in another mail system.

In part, the reason for this seemed to be the varations allowed by the protocol, and especially the partial implementation of the protocol by most systems.

The general approach to resolving these problems was two fold:,

First, a few minor further changes were to be allowed, but in general full implementation of the protocol (RFC 733) was not to be carried out. In case of questions about a particular change Duane Adams was to decide if it would be allowed ot not. The goal in this approach was to quickly stabilize the mail service in a useful state.

In particular, if a small number of senders are doing something that is incompatible with the total service, they will be asked to stop doing it. Or, if a small number of receivers can't handle something that most systems do, they will be asked to handle that feature.

Second, work was to be focused on the definition and implementation of a next-generation mail service which would attack all the existing problems and include facilities for voice, fax, and graphics data.

The use of structured data in the next-generation mail service was approved. Jack Haverty noted that RFC 713 specified a language, MSDTP, that could be used to define a structured mail protocol.

Conclusions:

A. Existing Mail Services

1. Mail shall not be sent between hosts if it breaks existing mail programs.

Outlawed by this rule are:

a. Spaces in user names.

b. Multiple at signs in mailboxes.

2. Features of RFC 733 that are generally unimplemented shall remain unimplemented, and are decommitted from the specification.

Outlawed by this rule are:

a. "Include" and "Postal" type addresses.

3. Duane Adams will arbitrate disputes.

4. There shall be no more changes to the MAIL/MLFL FTP reply codes.

B. New Mail Services

1. New services should be provided in the context of the experimental multimedia mail systems now being planned.

Action Items:

1. Jon Postel is to circulate a draft specification of a structured mail protocol by 15-Feb-79.

   [* This became IEN-85 published in March 1979 and now superseded by RFCs 759 and 767. *]

2. Everyone is to submit a 2 to 3 page position paper on addressing to Duane Adams by 1-Mar-79.

3. Everyone is to submit a 2 to 3 page position paper on System Architecture and Message Transmission by 1-Apr-79.

Appendix A:

First Preliminary List of ARPANET Mail Systems

Center;by Dave Farber

Mail System	Authors	Machines
SNDMSG	Antiquity	Tenex, TOPS-20
READMAIL	Antiquity	TEXEX, TOPS-20
RD	Larry Roberts	TENEX, TOPS-20
MSG	Vittal	TENEX (18 SITES)
HERMES	BBN	TENEX (14 SITES)
HG	Calvin	
MAIL	Werme	TOPS-10 on KA and KL10 CMU
RDMAIL	Karlton	TOPS-10 on KA and KL10 CMU
COMSAT	KLH	MIT-MC,-AI,-ML
MAIL/QMAIL (1)	KLH	MIT-MC,-AI,-ML
BABYL	EAK	MIT-MC,-AI,-ML
FTPS (2)	KLH	MIT-MC,-AI,-ML
SIGMA	ISI	Dedicated TENEX
MAILSTAT (3)	BBN	TENEX, TOPS-20
FTP (2)	BBN	TENEX, TOPS-20
MAILER (3)	BBN	TENEX, TOPS-20
MM	MMcM@AI	SRI-KL
BANANARD	Yonke	TENEX
MSG Version 1	UCB - RAND	PDP 11 UNIX
SNDMSG (UNIX)	UCB - RAND	PDP 11 UNIX
MS	D. Crocker	PDP 11 UNIX
MSG Version 2	D. Crocker	PDP 11 UNIX
MH	Borden	RAND-UNIX
Read-mail (1)	Palter & Sibert	Multics all
print-mail	Palter & Sibert	Multics all
send-mail	Palter & Sibert	Multics all
MSGH	Ness at Wharton	Wharton 10
Wharton Mail System	Ness at Wharton	Wharton 10
SWAMP	Guyton	IBM 370 Wilber
MSG	Antiquity	HARVARD and RUTGERS 10
MAIL (1)	Harvey	SU-AI-10
RCV (Mail reader)	Harvey	SU-AI-10
DMSG	(Private)	TENEX
READMAIL	-	LL IBM VM/370
RD	Haines	LL IBM VM/370
$NETMAIL	?	AMES-67

(1) mail sender
(2) FTP server
(3) service system

Attendees:

Name	Org	Mailbox
Duane Adams	ARPA	Adams@ISIA
Bill Carlson	ARPA	Carlson@ISIA
Vint Cerf	ARPA	Cerf@ISIA
Jerry Burchfiel	BBN	Burchfiel@BBNA
Debbie Deutsch	BBN	DDeutsch@BBNA
Jack Haverty	BBN	Haverty@BBN-Unix
Charles Khuen	BBN	Khuen@BBNC
Mark Lavin	BBN	MLavin@BBNE
Charlotte Mooers	BBN	Mooers@BBNE
Ted Myer	BBN	Myer@BBNA
Ray Nickerson	BBN	Nickerson@BBNC
Paul Santos	BBN	Santos@BBNE
Bob Thomas	BBN	BThomas@BBND
Mike Wingfield	BBN	Wingfield@BBND
Joanne Sattley	CCA	JZS@CCA
Howard Wactlar	CMU	Wactlar@CMU-10A
James Pool	DOE	Pool@BBN
Robert McNab	DCA	DCACode535@ISIA
Ed Cain	DCEC	Cain@EDN-Unix
Warren Hawrylko	DCEC	Lyons@ISIA
Harry Helm	DCEC	Lyons@ISIA
Danny Cohen	ISI	Cohen@ISIB
Jon Postel	ISI	Postel@ISIF
Dave Lebling	MIT	PDL@MIT-XX
Tom Knight	MIT	TK@MIT-AI
R. Stallman	MIT	RMS@MIT-AI
Pat Winston	MIT	PHW@MIT-AI
Al Vezza	MIT	AV@MIT-DMS
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